

methylhistidine, 5-hydroxylysine,  $\omega$ -N-methylarginine, and isoaspartic acid, which elicits production of antibodies against said peptide, and elicits an immune response by said subject sufficient to prevent and/or treat said disease, wherein said antibodies and/or immune cells interact with at least one region of an amyloid protein.

32. (New) The method of claim 31, wherein said peptide is A $\beta$  peptide, an immunogenic fragment thereof, a protein conjugate thereof, an immunogenic derivative peptide thereof, or a peptidomimetic thereof.

33. (New) The method of claim 32, wherein said peptide is comprised of at least one D-amino acid.

34. (New) The method of claim 33, wherein said peptide is selected from the group consisting of A $\beta$ 1-42, A $\beta$ 1-40, A $\beta$ 1-10, A $\beta$ 1-12, A $\beta$ 1-28, A $\beta$ 13-28, A $\beta$ 17-28, and A $\beta$ 35-42.

35. (New) The method of claim 34, wherein said peptide is modified by inserting one or more amino acid residues, or by substituting one or more amino acid residues with other amino acids.

36. (New) The method of claim 31, wherein said subject is a human being.

37. (New) The method of claim 31, wherein said disease is Alzheimer's disease.

38. (New) A vaccine for preventing and/or treating an amyloid-related disease in a subject, comprising an antibody raised against an antigenic amount of a peptide comprising at least one unnatural amino acid selected from the group consisting of a D-amino acid, an  $\alpha$ ,  $\alpha$ -disubstituted amino acid, an N-alkyl amino acid, lactic acid, 4-hydroxyproline,  $\gamma$ -carboxyglutamate,  $\epsilon$ -N,N,N-trimethyllysine,  $\epsilon$ -N-acetyllysine, O-phosphoserine, N-acetylserine,

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N-formylmethionine, 3-methylhistidine, 5-hydroxylysine,  $\omega$ -N-methylarginine, and isoaspartic acid, wherein said antibody interacts with at least one region of an amyloid protein sufficient to prevent and/or treat said disease.

39. (New) The vaccine of claim 38, wherein said peptide is A $\beta$  peptide, an immunogenic fragment thereof, a protein conjugate thereof, an immunogenic derivative peptide thereof, or a peptidomimetic thereof.

40. (New) The vaccine of claim 39, wherein said peptide is comprised of at least one D-amino acid.

41. (New) The vaccine of claim 40, wherein said peptide is selected from the group consisting of A $\beta$ 1-42, A $\beta$ 1-40, A $\beta$ 1-10, A $\beta$ 1-12, A $\beta$ 1-28, A $\beta$ 13-28, A $\beta$ 17-28, and A $\beta$ 35-42.

42. (New) The vaccine of claim 41, wherein said peptide is modified by inserting one or more amino acid residues, or by substituting one or more amino acid residues with other amino acids.

43. (New) The vaccine of claim 38, wherein said subject is a human being.

44. (New) The vaccine of claim 38, wherein said disease is Alzheimer's disease.

45. (New) A vaccine for preventing and/or treating an amyloid-related disease in a subject, comprising an antigenic amount of a peptide comprising at least one unnatural amino acid selected from the group consisting of a D-amino acid, an  $\alpha$ ,  $\alpha$ -disubstituted amino acid, an N-alkyl amino acid, lactic acid, 4-hydroxyproline,  $\gamma$ -carboxyglutamate,  $\epsilon$ -N,N,N-trimethyllysine,  $\epsilon$ -N-acetyllysine, O-phosphoserine, N-acetylserine, N-formylmethionine, 3-

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methylhistidine, 5-hydroxylysine,  $\omega$ -N-methylarginine, and isoaspartic acid, which elicits an immune response by said subject sufficient to prevent and/or treat said disease.

46. (New) The vaccine of claim 45, wherein said peptide is A $\beta$  peptide, an immunogenic fragment thereof, a protein conjugate thereof, an immunogenic derivative peptide thereof, or a peptidomimetic thereof.

47. (New) The vaccine of claim 46, wherein said peptide is comprised of at least one D-amino acid.

48. (New) The vaccine of claim 47, wherein said peptide is selected from the group consisting of A $\beta$ 1-42, A $\beta$ 1-40, A $\beta$ 1-10, A $\beta$ 1-12, A $\beta$ 1-28, A $\beta$ 13-28, A $\beta$ 17-28, and A $\beta$ 35-42.

49. (New) The vaccine of claim 48, wherein said peptide is modified by inserting one or more amino acid residues, or by substituting one or more amino acid residues with other amino acids.

50. (New) The vaccine of claim 45, wherein said subject is a human being.

51. (New) The vaccine of claim 45, wherein said disease is Alzheimer's disease.

52. (New) A method for preventing and/or treating an amyloid-related disease in a subject, comprising administering an antibody raised against an antigenic amount of a peptide comprising at least one unnatural amino acid selected from the group consisting of a D-amino acid, an  $\alpha$ ,  $\alpha$ -disubstituted amino acids, an N-alkyl amino acid, lactic acid, 4-hydroxyproline,  $\gamma$ -carboxyglutamate,  $\epsilon$ -N,N,N-trimethyllysine,  $\epsilon$ -N-acetyllysine, O-phosphoserine, N-acetylserine, N-formylmethionine, 3-methylhistidine, 5-hydroxylysine,  $\omega$ -N-

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methylarginine, and isoaspartic acid, wherein said antibody interacts with at least one region of an amyloid protein sufficient to prevent and/or treat said disease.

53. (New) The method of claim 52, wherein said peptide is A $\beta$  peptide, an immunogenic fragment thereof, a protein conjugate thereof, an immunogenic derivative peptide thereof, or a peptidomimetic thereof.

54. (New) The method of claim 53, wherein said peptide is comprised of at least one D-amino acid.

55. (New) The method of claim 54, wherein said peptide is selected from the group consisting of A $\beta$ 1-42, A $\beta$ 1-40, A $\beta$ 1-10, A $\beta$ 1-12, A $\beta$ 1-28, A $\beta$ 13-28, A $\beta$ 17-28, and A $\beta$ 35-42.

56. (New) The method of claim 55, wherein said peptide is modified by inserting one or more amino acid residues, or by substituting one or more amino acid residues with other amino acids.

57. (New) The method of claim 52, wherein said subject is a human being.

58. (New) The method of claim 52, wherein said disease is Alzheimer's disease.

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REMARKS

Claims 31-58 are pending, claims 1-30 having been canceled and new claims 31-58 having been added. Support for new claims 31, 32, 33, 45, 46, and 47 is provided at, *e.g.*, p. 2, lines 27-29 and lines 32-33; p. 4, lines 4-15; p. 10, line 29 to p. 11, line 11; p.13, lines 19-21; p. 15, lines 15-26; and, p. 16, 26-29. Support for new claims 34 and 48 is provided at, *e.g.*, p.13, lines 20-23; p. 14, lines 9-10; and, p. 15, lines 1-7. Support for new claims 35 and 49 is provided at, *e.g.*, p. 15, lines 15-18; and, p. 16, lines 6-7. Support for new claims 36 and 50 is provided at, *e.g.*, p. 11, lines 23-24; and, p. 13, lines 14-16. Support for new claims 37 and 51 is provided at,